The central fibre presents a distinct appearance of fibrillation, the fibrils, as a rule, crossing each other very obliquely. It is enlarged at the extremity in most cases, but occasionally there is no distinct swelling, the fibre being merely marked at its sides with minute denticulations or projections, from which, in preparations stained with chloride of gold, fine fibrils sometimes appear to proceed outward. The terminal enlargement, when present, is granular or homogeneous, and refracts light strongly, and it may contain a nucleus. The white substance of Schwann sometimes accompanies the central fibre for a short distance. No sheath of Schwann could be discovered in any instance covering the central fibre. In all respects the central fibre behaves like an axis cylinder. In regard to the core, in many, if not in all instances, an outer nucleated part of variable extent may be distinguished from the almost homogeneous non-nucleated substance which immediately surrounds the central fibre. Next, in reference to the capsular envelope, Dr. Schaefer's observations support the views of Axel Key and Retzius, who regarded the supposed simple capsules as consisting of two layers of flattened cells placed back to back. The intercapsular spaces are filled with an albuminous fluid, and are also pervaded by white and elastic fibres. In regard to the homology of the several parts of the Pacinian corpuscles with those of a nerve-fibre, Dr. Schaefer considers the central fibre as the axis cylinder. The main part of the core corresponds with the delicate protoplasmic layer which lies between the sheath of Schwann and the medullary sheath of a nerve-fibre, whilst the outermost portion of the core is distinctly continuous with the fine connective tissue in which the nerve-fibre lies imbedded within the neurilemma. The outer layers of the Pacinian body are continuous with the corresponding layers of the perineurium.—*London Lancet*, June.

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CONSTITUTION OF THE AXIS CYLINDER.—Fleischl, *Beitr. z. Anat. u. Physiol. Festschr. C. Ludwig gewidmet* (abstracted in *Psych. Centralblatt*): The axis cylinder of the fishes' spinal cord appears differently, according to the fluid employed for hardening it. After hardening in chromic acid, bichrom. potassæ, or Mueller's fluid, we observe in cross sections, the well-known appearance of almost punctiform dark red ends of the axis cylinders with their surrounding concentric lamellæ of uncolored medullary substance; with a stronger power the axis cylinder commonly seems furnished with processes so that it presents a stellate, crescentic or other irregular outline. On longitudinal sections they appear as numerous sinuous extended cords of very unequal thickness, and furnished with excrescences of every conceivable form.

Preparations of the cord of fishes which have been merely hardened in alcohol present a very different appearance. In such the cross section shows the axis cylinders as broad, circular or rounded many-facetted polygonal surfaces of uniform rosy color; and in the longitudinal section they appear as similarly tinted regular stripes of considerable width.

If the cord is hardened by immersion from twenty-four to twenty-eight hours in a perosmic acid solution (1:1000), the cross section gives the same forms as when alcohol alone is employed; the medulla is colored black, the axis cylinder, which may afterward be colored with carmine, is white. Hence it follows that the forms seen in the cord hardened by alcohol, correspond more closely with the normal than those seen after the use of chromic acid.

The conclusions which Fleischl deduces from his investigations are as follows:

The axis cylinder in life is a column of fluid, the volume of which is far more than half of that of the whole fibre.

The medullary matter occupies at most, in the living fibre, the space which after death is taken by the coagulated myeline.

The fluid which makes up the axis cylinder, contains a substance coagulating very readily and differently under different conditions.

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CIRCULATION OF THE BRAIN.—Dr. O. Heubner, in his recently published work, *Die Luetische Erkrankung der Hirnarterien*, gives some interesting details as to the distribution of the cerebral vessels. He operated by injecting the several arterial branches of the brain separately with colored fluids, and observing the results. The principal facts as to the final distribution of the larger vessels in the pia mater are thus summarized:

"The anterior cerebral artery supplies with its first branch of the second order, the network of the pia mater on the under surface of the first frontal convolution, the trigonum olfactorius, and the olfactory nerves; with its branches given off further on its course, it supplies those of the anterior and lateral surfaces of the first frontal convolution; with its corresponding half of the connecting commissure by the posterior branches, the superficies of the two central convolutions and the first parietal convolutions are supplied.

"The first branch of the second order of the middle cerebral artery supplies the third frontal convolution; the second supplies the second frontal convolution; the third the parts of the two central and superior parietal convolutions, which turn to the convexity of the brain; and the fourth supplies the second and third parietal, and part of the three temporal convolutions.

"The posterior cerebral artery supplies the occipital and part of the temporal convolutions.

"The island of Reil is nourished by an arterial network from the pia mater, which is chiefly derived from small lateral twigs of several branches of the arterial fossæ Sylvii.

"In the cerebellum, the regions of the pia mater supplied by single arterial branches, are not nearly so sharply defined as in the cerebrum."

The small arteries of the network of the pia mater, inosculate freely with each other, according to Heubner.

The arteries of the basal ganglia were also investigated in the same manner, with results not specially different from those of Duret, given in the January number of the JOURNAL for the present year. Dr. Heubner distinguishes in the general circulation of the brain, two separate regions, the basal and the cortical, as described above. In the first region the arteries do not inosculate, but each has its own special tract; in the latter, the inosculations are free and numerous, as stated.